

METHOD AND DEVICE FOR CHEMICAL VAPOR PHASE GROWTH OF TANTALUM OXIDE FILM

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Abstract of JP2250970

PURPOSE: To grow a dense tantalum oxide film in which impurities, pinholes and a leakage current are reduced by using gaseous TaCl₅ and gaseous N₂O as the raw gaseous materials and causing a plasma chemical reaction.

CONSTITUTION: Gaseous TaCl₅ is introduced into a reaction chamber 112 from a vaporization chamber 106, and N₂O is introduced into the reaction chamber 112 through a valve 116. A high frequency power source 109 is turned on, and a plasma chemical reaction is caused between the introduced TaCl₅ and N₂O to form a tantalum oxide film on the surface of a silicon substrate of a wafer 110. The quality of the film can be improved by introducing H₂ when the film is formed. The inside of the reaction chamber 112 is cleansed by the plasma chemical reaction using a gaseous fluorine-based halogen compd., and the quality, thickness, etc., of the tantalum oxide film are secured with good reproducibility.

